are about 750 types and illustrated specimens in the collection.

Recently Mr. Lacoe has presented the balance of his splendid collections, consisting chiefly of fossil insects. The liberality of the gift is as unfettered with conditions as its value is great. The collection is to be known as the 'Lacoe Collection,' and the only stipulation is "that it be accessible to scientists and students without distinction, provision being made for the proper preservation of the specimens from loss or injury."

Of the 182 described species of North American Paleozoic insects about two-thirds are represented in the 'Lacoe Collection' by the type specimens, besides many figured supplementary types. Of arachnids there are 62 specimens (14 types), myriapods 94 specimens (41 types), and insects 461 specimens, of which 116 species are described (136 types); about 300 specimens are unstudied. There is but one other Paleozoic collection equalling or exceeding in specimens the Lacoe Collection, namely, that from the coal fields of Commentry, France.

Of Tertiary insects from Florissant, Colorado, several hundred unstudied specimens and six described species are present, including a butterfly, one of the rarest of fossil insects. From the Tertiary of Oeningen, in Baden, there are about 3,500 specimens, of which about one-half (including about 428 species) have been studied by Mr. Samuel H. Scudder. Regarding this part of the Lacoe Collection Mr. Scudder writes (Geol. Mag. Dec. IV., Vol. II., 1895, pp. 116–122): "I have examined with some care his large collection of fossil insects from Oeningen, larger, perhaps, than any outside of Zurich, for it consists of about 3,500 specimens, of which fully one-half may be made use of to advantage.

"The 428 species which I have separated in Mr. Lacoe's collection are divided among the orders as follows: Orthoptera 8, Neuroptera 13, Hemiptera 57, Coleoptera 294, Diptera 17, Hymenoptera 39." From the Mesozoic and Cenozoic of Great Britain there are about 250 specimens.

Of Crustacea there are about 170 specimens, of which 11 are types or figured specimens. Of fishes and reptiles there are some 300 specimens, about half of which were labeled or described by the late Professor Cope.

Mr. Lacoe intends to continue his interest in the increase and study of 'The Lacoe Collection.' With the numerous Tertiary insects from the Western States gathered by the United States Geological Survey and studied or to be studied by Mr. Scudder, the United States National Museum will have one of the most comprehensive collections of fossil insects extant.

Dr. Goode's appreciative words regarding the plant collection are also applicable to the insect collection: "The acquisition of this wealth of material makes the National Museum an important reference center for all future comprehensive work in this field. The Lacoe Collection is a noble monument to the public spirit and generous enthusiasm of its founder."

A NEW NAME FOR THE GEORGIA OLD FIELD MOUSE.

IN my 'Land Mammals of Peninsular Florida and the Coast Region of Georgia,' (Proc. Boston Soc. of Nat. Hist., Vol. 28, No. 7, pp. 202–203, March, 1898), I described under the name '*Peromyscus subgriseus arenarius*,' the dark-colored form of the old field mouse found by Mr. W. W. Brown, Jr., on the sand hills about Hursman's Lake (Savannah River), near Bascom, Scriven Co., Georgia. After my manuscript had been turned in I noticed that I had used a name already given to a *Peromyscus* by Dr. E. A. Mearns. (The *Peromyscus eremicus eremicus* Mearns, Proc. U. S.

Nat. Mus. Washington, p. 138, 1896.) I meant to correct my mistake when I read my proof, but I neglected so to do.

It, therefore, becomes necessary to give the Georgia old field mouse a new name and I propose for it *Peromyscus subgriseus baliolus** nom. nov. *Type*, No. 5925, Coll. of E. A. and O. Bangs, described under above reference as *Peromyscus subgriseus arenarius*.

OUTRAM BANGS.

BOTANICAL NOTES.

SEEDS AND VERY LOW TEMPERATURES.

Two English investigators, H. T. Brown and F. Escombe, recently made some interesting experiments upon the ability of seeds to endure very low temperatures. In the Jodrell laboratory, of the Kew Gardens, they enclosed seeds in thin glass tubes immersed in a vacuum-jacketed flask containing about two liters of liquid air; the latter was replenished so as to submit the seeds, for one hundred and ten hours, to a temperature of from —183° C. to —192° C. (—297° Fahr. to —313° Fahr.). The seeds used were: *Hordeum distichon*, *Avena sativa*, *Cucurbita pepo*, *Cyclanthera explodens*, *Lotus tetragonolobus*, *Pisum elatius*, *Trigonella foenum-graecum*, *Impatiens balsamina*, *Helianthus annuus*, *Heracleum villosum*, *Convolvulus tricolor* and *Funkia sieboldiana*. They had previously been air-dried, and contained, when the experiment was begun, from ten to twelve per cent. of moisture. After their prolonged exposure to the intense cold indicated above, they were slowly thawed, the process requiring about fifty hours. They were then tested as to their germinative power, by comparison with seeds from the same lots, which had not been subjected to this low temperature, with the result that 'their germinative power showed no appreciable difference from that of the controls, and the resulting plants, which were in most cases grown to full maturity, were equally healthy in both cases.'

This astonishing result can not fail to attract much attention, not only of botanists, but of gardeners and farmers as well. That this was not due to unusual or accidental conditions is shown by experiments by other investigators, cited by Messrs Brown and Escombe. Thus DeCandolle and Pictet in 1884 exposed seeds for four days to a temperature of —100° C. (—148° Fahr.) without destroying their vitality, and in 1895 the former exposed seeds in the 'snow box' of a refrigerating machine for a period of one hundred and eighteen days to a temperature of from —37° C. to —53° C. (—34.6° Fahr. to —63.4° Fahr.), a treatment which most of the seed are said to have 'resisted successfully.'

While these experiments are very interesting as showing that mere lowering of temperature may not necessarily destroy the vitality of seeds, it is fair to the investigators to say that this was not their principal object. They aimed to determine the condition of the protoplasts of the resting seed, whether (1) 'the essential elements of the cell, during the period of inertness, are still undergoing feeble but imperceptible alteration, accompanied by gaseous interchange with the surrounding atmosphere,' or (2) 'that all metabolism is completely arrested in protoplasm when in the dormant state, and that it then loses, for the time being, all power of internal adjustment to external conditions.'

In other words, they asked the question: 'Is the machinery of the dormant cell merely *slowed down* to an indefinite extent, or is it completely *brought to rest* for a time, to be once more set going when external conditions are favorable?' To this question they make answer that 'we must regard the protoplasm in resting seeds as existing in an absolutely inert state, devoid of any trace of metabolic activity, and yet conserving the potentiality of life.'

* Baliolus=dark-brown, swarthy.